

most serious consequences as regards the construction and the use of these tables.

In a work of such magnitude and diversity, it is futile to think that errors can have been completely avoided, but from frequent consultation of the earlier volumes we can testify to their remarkable freedom from printers' errors. We think a short account of each of the principal natural orders should have been given, and the space so allotted might have been saved, in part at least, by thus obviating the necessity of some amount of repetition in dealing with the several genera.

Prof. Bailey has availed himself of the resources of Cornell University, of the "Dictionary of Gardening" by Nicholson and of the numerous standard publications issued from Kew, and, amongst other sources of information, has consulted and compared some hundred or more catalogues of nurserymen. This latter procedure needs to be followed with the utmost caution and is one to which, perhaps, the omission of the genus *Trochodendron* is to be attributed. After all, the plants that have special interest for commercial purposes are few in number as compared with those which appeal primarily to the lover of plants or to the scientific botanist.

We might extend our notice of this book to a much greater length than the editor could allow space for. We can only add that the illustrations are very numerous, uniform in treatment, often very useful, but, on the whole, not equal in value to the text. Further, that although expressly compiled to meet American conditions, it will, with the necessary modifications, be of great value in all English-speaking countries.

#### THE MANUFACTURE OF SUBMARINE CABLES.

*Les Câbles Sous-Marins. Fabrication.* Par Alfred Gay. Pp. 203. (Paris: Gauthier Villars et Fils, n.d.)

THE author of this little book, as we are informed on the title-page, is an engineer in the employment of the Société industrielle des Téléphones, the leading French firm for the manufacture of submarine cables. The volume is one of a series appearing under the name of "Encyclopédie scientifique des Aide-memoire," edited by M. Léauté, who is also, we understand, connected with the Société industrielle des Téléphones. From the title of the series we gather that this publication is designed to serve as a pocket text-book for submarine cable engineers, though the style in which it is written and the absence of an index—a fatal omission for any work of reference—make it resemble a popular treatise on the subject of cable manufacture rather than a scientific handbook. One example will serve to justify this view. In his reference to the Wheatstone Bridge—the most usual form of testing the conductor resistance of a cable—the author makes no attempt to explain the theory of the test, but merely gives the connections and the formula for obtaining the result. A book on cable testing which evades an explanation of the *Pont de Wheatstone* is as great a curiosity as a treatise on Euclid which omits all reference to the *Pons Asinorum*.

One or two other points call for comment. With regard

to the testing of the dielectric resistance, M. Gay observes that some physicists have expressed the opinion that, if sufficient time were allowed, the "spot" would return to zero and remain there. This could only happen in the case of a material which possessed an absolute dielectric resistance, and through which, consequently, no current could escape. Manufacturers have hitherto failed to discover this material. Further on, the author asks why the negative current is always the first to be applied to the cable, and answers his question by saying that he believes that there is no good reason for using one current in preference to the other. But M. Gay must know that, when testing a faulty cable under water, the chemical action of the zinc current tends to clean the fault and make it more apparent, while the copper current throws a deposit on the exposed surface and masks the fault. Thus the reason for using the zinc current first is to discover at once any fault that may exist.

Throughout his book the author pays too little attention to the question of capacity in connection with the manufacture of cables. On p. 14, in enumerating a long list of the conditions which a good dielectric must satisfy, he does not mention the desirability of a low capacity. In fact, on p. 107 he goes out of his way to lay stress on the superior importance of insulation tests to capacity tests, ignoring the fact that, *ceteris paribus*, the work to be got out of a cable depends on its capacity, its insulation being purely a secondary matter. Finally, on p. 145 M. Gay says that the engineer is not master of the capacity of a core, the dimensions of which are given him, as though the capacity could not be varied by the selection and mixture of the gutta-percha used, independently of its relative weight to the conductor.

For the rest, it may be sufficient to point out that, in connection with the table of coefficients, given on p. 85, for reducing the D.R. of the cable at the temperature at which it is tested to its equivalent at 75°, one must *divide* and not *multiply* (as instructed on pp. 147 and 149) by the coefficient given, for the D.R. at 75° is, of course, less than at a lower temperature and more than at a higher temperature. With regard to the brazing of a joint, M. Gay would find it difficult to scarf the two ends of the conductor, if he omits, as he does in the directions on p. 173, to solder them first.

Enough has been said to show that the book is not likely to prove of great value as a work of reference for cable engineers. But as a popular treatise on a process of manufacture of which the public knows little, and may like to know more, it deserves very favourable notice. The chapter on the composition and properties of gutta-percha is specially good, and on pp. 90 and 91 the author sums up very clearly and succinctly the reasons for the various conditions which specifications require the dielectric to satisfy.

"Voici, en deux mots, sur quels motifs est basée l'introduction de chacune de ces règles: on impose une limite inférieure d'isolement pour se garantir contre les défauts de fabrication; on impose une limite supérieure d'isolement pour empêcher l'emploi des guttas très résineuses qui, en général, s'altèrent vite avec le temps; on impose un résidu maximum dans le chloroforme ou le toluène pour s'assurer que le mélange a été bien nettoyé

et qu'il ne contient plus une proportion trop grande des matières étrangères ; on impose enfin un résidu minimum dans l'alcool bouillant ou, si l'on veut, un résidu maximum après décantation et évaporation du liquide ayant servi aux expériences pour obliger le fabricant à faire usage de lots contenant une proportion suffisante de gutta pure."

### OUR BOOK SHELF.

*Some Thoughts on the Principles of Local Treatment in Diseases of the Upper Air Passages.* By Sir Felix Semon, M.D., F.R.C.P. Pp. 115 ; with Appendix pp. 130. (London : Macmillan and Co., Ltd.) Price 2s. 6d. net.

THIS little volume, reprinted from the *British Medical Journal*, consists of two lectures delivered in November, 1901, at the Medical Graduates' College and Polyclinic ; and there is an appendix consisting of two letters dealing with the controversy aroused by the publication of these lectures.

The book is evidently intended for the medical profession only, the object of the distinguished author being two-fold, that is to say, it is a serious protest against "operative intemperance" and an attempt to lay down some simple principles for the treatment of diseases of the upper air passages.

Such a protest from within the profession against "the lust of operation"—perhaps a euphemism for something still more discreditable—has long been needed, and will doubtless require periodical repetition.

For the craze for specialists for everything (even "for a child of 6 months old") has recruited the ranks of specialism with many undesirables, possessed of the minimum of really special knowledge, except such as is generally associated with one's conception of the pachydermatous and pushing commercial traveller.

The author, perhaps wisely, confines himself to the less offensive expressions, "lust of operation," "operative intemperance"—charges from which he, with everyone else, wholly exonerates all honourable members of the profession possessed of judgment and a proper sense of responsibility.

Coming to questions of treatment, the author divides the symptoms and signs arising in pathological conditions of the upper air passages into five categories :—(1) Affections of a purely local character. (2) Local manifestations of general systemic diseases. (3) Local manifestations in nose and throat dependent upon local diseases in correlated areas. (4) Affections of the upper air passages supposed to exercise direct or reflex influence upon other organs and parts of the body. (5) Local symptoms and sensations of obscure origin.

In conclusion, some observations are made on the necessity of a proper proportion being observed between the gravity of the disease and that of the interference, so as "to make the punishment fit the crime."

In admirably clear and concise language, the diseases included in the foregoing subdivisions are specified, and a surprising amount of detailed treatment, of the utmost value, given in the subsequent pages, for many of these conditions, e.g. the various stages of tuberculous laryngitis.

In addition, sundry more or less fashionable methods of treatment, such as breathing exercises, and catch phrases, such as "nasal insufficiency," are subjected to the most searching criticism ; whilst the dangers of ignorant "specialism" are fully exposed by a series of cases which has come under the direct observation of the author.

We congratulate the writer of these lectures, believing that he has done excellent service to his profession and to the public generally ; and we confidently recommend

the volume both to the up-to-date general practitioner and to the specialist, whether broad- or narrow-gauged. H. C.

*Flora der ostfriesischen Inseln.* By Dr. Fr. Buchenau. Fourth edition. Pp. iv + 213. (Leipzig : Wilhelm Engelmann, 1901.)

IN order to incorporate the results of the systematic examination of the mosses, hepatics and lichens of the East Friesian Islands, Dr. Buchenau has brought out a fourth edition of his flora. The previous edition included the descriptive text of the phanerogams and pteridophytes and a highly interesting ecological account of the types of vegetation. A comparison of the flora of the islands and of the mainland brings out some curious points of difference. On this account the author rescinds his former opinion that the plants had travelled over from the continent ; more probably, he suggests, the insular vegetation represents the remains of an ancient *diluvial* flora. No changes are made in the previous issue, the new edition consisting in the addition of some extra pages, which contain a list, without diagnoses, of the Muscinæ and Lichenes and an appendix giving corrections and addenda. Amongst the mosses it is interesting to find recorded a group of Bryums, represented by *Bryum calophyllum*, which are found locally in this country on sandhills near the mouths of certain rivers. The fungi of the islands are now being worked by Herr E. Lemmermann, and his results will be included in a future issue.

*Occultations of Stars and Solar Eclipses.* By Francis Cranmer Penrose. Second edition. Pp. viii + 36. (London : Macmillan and Co., Ltd, 1902.) Price 12s. 6d. net.

THE first edition of this book was published in the year 1869, but in the present issue Mr. Penrose has not only simplified and condensed the work contained in it, but has extended it in that portion which relates chiefly to total solar eclipses. Most of us are familiar with the importance of determining one's position on the earth's surface, especially when on the ocean or on land far removed from the privileges of civilisation, and any attempt, either by a graphical or computational process, to facilitate this object is very welcome both to navigators and travellers. In this book Mr. Penrose treats the methods of predicting such phenomena as occultations of stars and eclipses of the sun by graphical construction, and he adds more rigorous methods of reduction for the accurate calculation of longitude. The very full explanation of the principle involved, the details of the working out of each case in point, the tables to facilitate the necessary computations, and the skeleton forms for actual practice, will all be found sufficiently clear to enable the worker to understand the practical use of the method.

*Algebra.* Part ii. By H. G. Willis. Pp. liii + 375. Rivington's Junior Mathematics. (London : Rivingtons, 1902.) Price 1s. 4d.

IN these pages we have a collection of algebraical exercises arranged in a progressive order of difficulty and suitable for elementary classes. The compiler has divided the examples in the following way : collection in groups suitable for lessons of about an hour, more advanced questions at end of each group ; exercises grouped in series of twenty-six, furnishing two lessons per week for a term ; two sets of parallel series either for alternate terms or for more lessons than in one series ; oral questions at the beginning of each exercise. The scope of the questions carries the exercises up as far as the progressions. The book should prove useful to teachers who require graduated courses ; answers to all the questions are given at the end.